+PATENT

Attorney Docket No. SIMC1P008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of

Applicant:	Winga Ho	Group Art Unit: 2143
Application No.:	09/587,721	Examiner: Boutah, A. A.
		Confirmation No.: 7907
Filed:	June 5, 2000	
For:	**SYNCHRONIZATION METHOD AND SYSTEM FOR KEEPING TRACK OF ENCODING HISTORY TO MAINTAIN DIGITAL SYSTEM.... MEDIA**	

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal to the Examiner's Final Official Action dated December 12, 2003 (Examiner's Paper No. 6) issued in respect of the above-identified application, finally rejecting claims 1 to 20.

1. **Real Party in Interest**

By virtue of Assignments, the real party in Interest is Mitel Networks Corporation of Kanata, Ontario.

2. **Related Appeals and Interferences**

There are no other related appeals or interferences know to the Applicant.

3. **Status of Claims**

Allowed claims:	None
Claims objected to:	None
Claims rejected:	1 to 20

4. **Status of Amendments**

On June 23, 2003, the Examiner issued an Official Action rejecting claims 1 to 11 under 35 U.S.C. §103(a) as being unpatentable over International PCT Application No. WO 95/14971 to Desnoyers et al. in view of European Patent No. 0851624 to Uota et al.

On September 18, 2003, Applicant responded to the Official Action by way of a Response and Amendment that amended claims 1 to 6, 9 and 11 and added new claims 12 to 20 to overcome the Examiner's rejection.

On December 12, 2003, the Examiner issued a Final Official Action rejecting claims 1 to 20 under 35 U.S.C. §103(a) as being unpatentable over the previously cited Desnoyers et al. and Uota et al. references.

5. **Summary of the Invention**

According to one aspect of the Applicant's invention as defined by independent claim 1, Applicant provides a method for transmitting encoded data between synchronized sending and receiving digital systems across a lossy transmission media. The sending and

receiving digital systems maintain respective encoder and decoder information records (see page 4, lines 19, 20, 25 and 26). During the method, packet data to be transmitted by the sending digital system is encoded using encoding information in an encoder information record that has been previously acknowledged by the receiving digital system. A new encoder information record including the encoding information used to encode the packet data as well as the packet data is built (see page 6, lines 1 to 8). The encoded packet data is transmitted to the receiving digital system as a packet including a header having a packet number and a tag identifying the encoding information used to encode the packet data (see page 6, lines 8 to 10). When the packet is received by the receiving digital system, the header is examined to determine the encoding information used to encode the packet data (see page 6, lines 15 to 19). The packet is decoded using corresponding decoder information in the decoder information record and the decoder information in the decoder information record is updated with the packet data (see page 6, lines 20 to 28). Processing of the packet is acknowledged to the sending digital system to enable the sending digital system to update the encoder information so that the new encoder information record is used to encode future packet data to be transmitted (see page 6, line 28 to page 7, line 2). When a packet is lost, the sending digital system rebuilds the new encoder information record without the lost packet data (see page 9, lines 7 to 16).

According to another aspect of the Applicant's invention as defined by independent claim 17, Applicant provides a communication system including synchronized sending and receiving digital systems transmitting encoded data across a lossy transmission medium. The sending and receiving digital systems maintain respective encoder and decoder information records (see page 4, lines 19, 20, 25 and 26). The communication system comprises at the sending digital system, an encoder for encoding packet data to be transmitted using encoding information in an encoder information record that has been previously acknowledged by the receiving digital system. An encoder information record construct builds a new encoder information record including the encoding information used to encode the packet data as well as the packet data (see page 6, lines 1 to 8). A transmitter transmits the encoded packet data to the receiving digital system as a packet including a header having a packet number and a tag identifying the encoding information used to encode the packet data (see page 6, lines 8 to 10). At the receiving digital system, a header destruct examines the header to determine the encoding information used to encode the packet data (see page 6, lines 15 to 19). A decoder decodes the packet using corresponding decoder information in the decoder information record and updates

the decoder information in the decoder information record with the packet data (see page 6, lines 20 to 28). An acknowledger acknowledges processing of the packet to the sending digital system to enable the sending digital system to update the encoder information so that the new encoder information record is used to encode packet data (see page 6, line 28 to page 7, line 2). When a packet is lost, the encoder information record construct is conditioned to rebuild the new encoder information record without the lost packet data (see page 9, lines 7 to 16).

The present invention provides advantages in that if data packets are lost, the encoder of the sending digital system is conditioned to rebuild the unacknowledged encoder history/state information record without the missing packet data. Encoding can continue using the current or previously acknowledged encoder history/state information records. Thus, encoding history is used to the extent possibly even when packets are lost reducing the amount of vocabulary the encoding algorithm must relearn (see page 2, line 30 to page 3, line 4). When the sending and receiving digital systems become unsynchronized, the encoder history/state information is conditioned to the last known point at which the digital systems were known to be synchronized and not to its initial state as is common in prior art systems. This allows synchronization between the sending and receiving digital systems to be less tightly coupled. In this manner, encoding efficiency can be maintained since prior encoder history/state information is not lost. As a result, compressibility need not be reduced significantly when packet loss is detected and retransmission of lost data is required. This is particularly attractive when transmitting packetized data over unreliable networks such as the Internet and Frame Relay and IP networks (see page 9, lines 17 to 26).

6. **Issues**

On the basis of prior art, the Examiner has rejected claims 1 to 20 under 35 U.S.C. §103(a) as being unpatentable over International PCT Application No. WO 95/14971 to Desnoyers et al. ("Desnoyers") in view of European Patent Application No. 0851624 to Uota et al. ("Uota").

For the convenience of the Honorable Board of Appeals, the Final Rejection dated December 12, 2003 has been reproduced, and is attached hereto and identified as Exhibit A.

Accordingly, the primary issue before the Honorable Board of Appeals is whether the Examiner's rejection of the present invention, as defined by claims 1 to 20 of the present application, in view of the cited references is appropriate.

7. **Grouping of Claims**

For the purposes of this Appeal only, Applicants accept, without prejudice, the presumption that claims 1 to 16 stand or fall together and that claims 17 to 20 stand or fall together.

8. **Argument**

A. Claim 1

Before dealing with the prior art rejections raised by the Examiner in the Final Official Action, Applicant would like to discuss briefly the present invention for the benefit of the Honorable Board of Appeals.

According to one aspect of the Applicant's invention as defined by independent claim 1, Applicant provides a method for transmitting encoded data between synchronized sending and receiving digital systems across a lossy transmission media. The sending and receiving digital systems maintain respective encoder and decoder information records. During the method, packet data to be transmitted by the sending digital system is encoded using encoding information in an encoder information record that has been previously acknowledged by the receiving digital system. A new encoder information record including the encoding information used to encode the packet data as well as the packet data is built. The encoded packet data is transmitted to the receiving digital system as a packet including a header having a

packet number and a tag identifying the encoding information used to encode the packet data. When the packet is received by the receiving digital system, the header is examined to determine the encoding information used to encode the packet data. The packet is decoded using corresponding decoder information in the decoder information record and the decoder information in the decoder information record is updated with the packet data. Processing of the packet is acknowledged to the sending digital system to enable the sending digital system to update the encoder information so that the new encoder information record is used to encode future packet data to be transmitted. When a packet is lost, the sending digital system rebuilds the new encoder information record without the lost packet data.

In contrast, Desnoyers discloses a method and system for synchronizing an encoder and a decoder for data utilizing sequence indicators and error detection information added to the data before transmission. During the method, error detection information, based on a current unit of encoded data and at least one previous unit of encoded data, is added to the encoded data to provide error detect units. The error detect units are transmitted across the communication network. When the error detect units are received, errors are detected utilizing the error detection information therein. In order to synchronize the encoder and decoder, upon detecting an error by the decoder, the decoder transmits a reset request code sequence over a reverse channel to the encoder. In the preferred embodiment, the encoder in turn transmits an acknowledgement code sequence over the communication network to acknowledge receipt of the reset request code sequence. When the acknowledgement code sequence is received, the decoder is reset. Where there is a failure of the acknowledgement code sequence, the decoder transmits a further reset request code sequence to the encoder.

Uota discloses a method of constructing data frames to enable sending and receiving systems to determine when a transmitted data frame has not being properly received. Each data frame includes a flag sequence field, a forward information field, a backward information field, a user data field and an error-detection code field. The flag sequence field delineates the frame, the forward information field identifies the frame being sent and the backward information field includes history information of received frames in the form of an 8-bit string. When a frame is received, a bit in the bit string of the backward information field of a return frame to be transmitted is inverted. This enables the digital system receiving the return frame to determine that the previously transmitted frame was properly received.

Applicant respectfully submits that neither Desnoyers nor Uota either alone or in combination teaches or suggest the Applicant's invention as claimed. The Examiner acknowledges that Desnoyers fails to teach or suggest building a new encoder information record including the encoding information used to encode the packet data as well as the packet data; updating the decoder information in the decoder information record with the packet data; acknowledging processing of the packet to the sending digital system to enable the sending digital system to update the encoder information so that the new encoder information record is used to encode packet data; and at the sending digital system rebuilding the new encoder information record without the lost packet data.

The Examiner alleges that Uota teaches building a new information record including the information used to construct the packet data as well as the packet data; updating the information in the receiver information record with the packet data; acknowledging processing of the packet to the sending digital system to enable the sending digital system to update the encoder information so that the new encoder information record is used to send packet data; and when the packet is lost, at the sending digital system rebuilding the new encoder information record without the lost packet data. Contrary to the Examiner's statements concerning Uota, Applicant respectfully submits that Uota fails to teach or suggest the building or rebuilding of an information record used to encode packet data. Uota simply discloses the construction of data frames that can be examined to determine if previously transmitted frames were received by adjusting bits in the bit strings of backward information fields within return data frames. Thus, Applicant respectfully submits that Desnoyers and Uota do not result in the Applicant's invention as claimed.

Applicant also respectfully submits that there is no possibility of combining the cited references without the benefit of hindsight analyses to arrive at the Applicant's invention as claimed. The Supreme Court has frequently warned against the use of "hindsight" in determining obviousness (see for example Diamond Rubber Co. v. Consolidated Rubber Tire Co., 220 U.S. 428 (1911)). In re Mahurkar Patent Litigation (1993) 831 F. Supp. 1354, 28 U.S. PQ 2d 180 (N.D. ILL. 1993.), Judge Easterbrook noted that "decomposing an invention into its constituent elements, finding each element in the prior art, and then claiming that it is easy to reassemble these elements into the invention, is a forbidden ex post analysis".

The Examiner is clearly using the present invention, as claimed, as a template in order to piece together the teachings of the prior art to render the claims obvious. It is

impermissible to use the disclosure of the present invention as a "road map" for selecting and combining prior art disclosures. As stated in In re Wesslau 353 F. 2d 238,147 U.S. PQ 391 (CCPA 1965), the Court of Customs and Patent Appeals cautioned that "it is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art".

The primary Desnoyers reference relied upon by the Examiner fails to teach or suggest a significant amount of the subject matter recited in independent claim 1. The Examiner has expanded the teachings of Uota to allege that the subject matter missing from Desnoyers is shown in Uota and that one of ordinary skill in the art would combine Desnoyers and Uota to arrive at the Applicant's invention as claimed. Applicant respectfully disagrees. Desnoyers teaches an encoder and decoder synchronization technique utilizing sequence indicators and error detection information added to the data before transmission wherein the decoder is reset in response to an acknowledgement code sequence received from the encoder that is generated when the decoder transmits a reset request code sequence. To allege that one of ordinary skill in the art would modify the teachings of Desnoyers in view of Uota clearly disregards the teachings of Desnoyers as a whole, which presents its own synchronization technique based on sequence indicators, error detection information and reset request code sequences. Accordingly, Applicant respectfully submits that the Examiner's combination of references is inappropriate and contrary to well established law.

B. Claim 17

According to another aspect of the Applicant's invention as defined by independent claim 17, Applicant provides a communication system including synchronized sending and receiving digital systems transmitting encoded data across a lossy transmission medium. The sending and receiving digital systems maintain respective encoder and decoder information records. The communication system comprises at the sending digital system, an encoder for encoding packet data to be transmitted using encoding information in an encoder information record that has been previously acknowledged by the receiving digital system. An encoder information record construct builds a new encoder information record including the encoding information used to encode the packet data as well as the packet data. A transmitter transmits the encoded packet data to the receiving digital system as a packet including a header

having a packet number and a tag identifying the encoding information used to encode the packet data. At the receiving digital system, a header destruct examines the header to determine the encoding information used to encode the packet data. A decoder decodes the packet using corresponding decoder information in the decoder information record and updates the decoder information in the decoder information record with the packet data. An acknowledger acknowledges processing of the packet to the sending digital system to enable the sending digital system to update the encoder information so that the new encoder information record is used to encode packet data. When a packet is lost, the encoder information record construct is conditioned to rebuild the new encoder information record without the lost packet data.

As will be appreciated, independent claim 17 relates to a communication system that carries out communications in a manner similar to that defined by independent claim 1. Accordingly, Applicant's commentary provided above concerning the patentability of independent claim 1 over the cited Desnoyers and Uota references, equally applies to independent claim 17.

In view of the above, Applicants respectfully submit that the present application is in order for allowance and respectfully request the Board of Appeals to direct the Examiner to withdraw the Final Official Action and issue a Notice of Allowance.

Respectfully submitted,
BEYER WEAVER & THOMAS LLP

C. Douglass Thomas
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CLAIMS APPENDIX

1. A method for transmitting encoded data between synchronized sending and receiving digital systems across a lossy transmission media, said sending and receiving digital systems maintaining respective encoder and decoder information records, said method comprising the steps of:

encoding packet data to be transmitted by said sending digital system using encoding information in an encoder information record that has been previously acknowledged by said receiving digital system;

building a new encoder information record including the encoding information used to encode said packet data as well as the packet data;

transmitting the encoded packet data to said receiving digital system as a packet including a header having a packet number and a tag identifying the encoding information used to encode the packet data;

when the packet is received by said receiving digital system, examining the header to determine the encoding information used to encode said packet data;

decoding the packet using corresponding decoder information in said decoder information record and updating the decoder information in said decoder information record with said packet data;

acknowledging processing of the packet to said sending digital system to enable said sending digital system to update said encoder information so that said new encoder information record is used to encode future packet data to be transmitted; and

when the packet is lost, at the sending digital system rebuilding the new encoder information record without the lost packet data.

2. The method of claim 1 wherein said rebuilding step is performed when a packet is received out of sequence by said receiving digital system and a threshold amount of time elapses without the missing packet being received.

3. The method of claim 2 wherein packets received out of sequence are stored in a queue and wherein a packet timer is initiated by said receiving digital system to count said

threshold amount of time when a packet is received out of sequence, said packet timer being stopped when said missing packet is received.

4. The method of claim 3 wherein said rebuilding step includes the step of sending a synch control packet from said receiving digital systems to said sending digital system, said synch control packet including a tag identifying the last packet processed by said receiving digital system, said sending digital system using said synch control packet to rebuild said new encoder information record.

5. The method of claim 4 wherein said rebuilding step further includes the steps of initiating a synchronization timer at said receiving digital system when said synch control packet is sent; stopping said timer when an acknowledgment is received from said sending digital system in response to said synch control packet; and resending the synch control packet and reinitiating the synchronization timer if said synchronization timer expires and an acknowledgment has not been received.

6. The method of claim 5 wherein said rebuilding step further includes the steps of incrementing a counter each time a synch control packet is sent; comparing the value of said counter to determine if the value equals a threshold prior to resending the synch control packet and reinitiating the synchronization timer; and resetting the communication link between said sending and receiving digital systems if the value of said counter equals said threshold value.

7. The method of claim 1 wherein during said acknowledging step, an acknowledgment packet is returned to said sending digital system, said acknowledgment packet including identifying the last packet processed by said receiving digital system.

8. The method of claim 1 wherein during said acknowledging step, an acknowledgment header encapsulating data packets is returned to said sending digital system, said acknowledgment header identifying the last packet processed by said receiving digital system.

9. The method of claim 1 further comprising the steps of, prior to decoding said packets by said receiving digital system, examining said packets to detect corrupted packets and discarding corrupted packets.

10. The method of claim 9 wherein during said examining step a cyclic redundancy check is performed on said packets.

11. The method of claim 10 further comprising the step of discarding received packets having packet numbers outside of a defined range of expected packet numbers.

12. The method of claim 6 further comprising the steps of, prior to decoding said packets by said receiving digital system, examining said packets to detect corrupted packets and discarding corrupted packets.

13. The method of claim 12 wherein during said examining step a cyclic redundancy check is performed on said packets.

14. The method of claim 13 further comprising the step of discarding received packets having packet numbers outside of a defined range of expected packet numbers.

15. The method of claim 1 wherein during encoding, the packet data is compressed, encrypted and/or scrambled.

16. The method of claim 9 wherein during encoding, the packet data is compressed, encrypted and/or scrambled.

17. A communication system including synchronized sending and receiving digital systems transmitting encoded data across a lossy transmission medium, said sending and receiving digital systems maintaining respective encoder and decoder information records, said communication system comprising:

at the sending digital system, an encoder for encoding packet data to be transmitted using encoding information in an encoder information record that has been previously acknowledged by said receiving digital system;

an encoder information record construct for building a new encoder information record including the encoding information used to encode said packet data as well as the packet data; and

a transmitter for transmitting the encoded packet data to the receiving digital system as a packet including a header having a packet number and a tag identifying the encoding information used to encode the packet data; and

at the receiving digital system, a header destruct for examining the header to determine the encoding information used to encode said packet data;

a decoder for decoding the packet using corresponding decoder information in said decoder information record and updating the decoder information in the decoder information record with the packet data; and

an acknowledger for acknowledging processing of the packet to the sending digital system to enable the sending digital system to update the encoder information so that the new encoder information record is used to encode packet data, wherein when a packet is lost, said encoder information record construct is conditioned to rebuild the new encoder information record without the lost packet data.

18. A communication system according to claim 17 wherein said encoder information construct is conditioned to rebuild the new encoder information record when a packet is received by said receiving digital system out of sequence and a threshold amount of time elapses without the missing packet being received by the receiving digital system.

19. A communication system according to claim 18 wherein said receiving digital system stores packets received out of sequence in a queue and initiates a packet timer to count said threshold amount of time when a packet is received out of sequence, said packet timer being stopped when said missing packet is received.

20. A communication system according to claim 19 wherein said receiving digital system sends a synch control packet to said sending digital system when a packet is lost, said

encoder information record construct being responsive to said synch control packet to rebuild the new encoder information record, said synch control packet including a tag identifying the last packet processed by said receiving digital system.

PRG

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/587,721	06/05/2000	Winga Ho	SMC1P008	7907

22434 7590 12/12/2003

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OIPE JC133 NOV 18 2004 PATENT & TRADEMARK OFFICE

EXAMINER	
BOUTAH, ALINA A	

ART UNIT	PAPER NUMBER
2143	6

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

BEYER WEAVER & THOMAS, LLP
ATTY: CDT ASSOC: ODT
ACTION: FINAL REJECTION/ NOT. OF APPEAL; 2MONS.
DUE DATES: 2MONS – 2/12/04
FIN. REJ. – 3/12/04; NOA – 9/12/04
DOCKETED: 12/17/03 BY: KFM MHH
DOCKET NO.: SMC1P008US

Office Action Summary	Application No.	Applicant(s)	
	09/587,721	HO, WINGA	
	Examiner	Art Unit	
	Alina N Boutah	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *22 September 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

This action is in response to Applicant's amendment received September 24, 2003. Claims 12-20 have been newly added. Claims 1-20 are pending in the present application.

Drawings

The drawings were objected to because reference number 24 in figure 2b should have been labeled as decoder. A proposed drawing correction or corrected drawing has been submitted and is approved. Therefore the objection is now withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 95/14971 issued to Desnoyers et al. in view of EP 0851624 issued to Uota et al.

(Amended) Regarding claim 1, Desnoyers teaches a method for transmitting encoded data between synchronized sending and receiving digital systems across a lossy transmission

media, said sending and receiving digital systems maintaining encoder and decoder information records, said method comprising the steps of:

encoding packet data to be transmitted by said sending digital system using encoding information (page 3, lines 1-4);

transmitting the encoded packet data to said receiving digital system as a packet including a header having a packet number and a tag identifying the encoding information used to encode the packet data (page 3, lines 4-5);

when the packet is received by said receiving digital system, examining the header to determine the encoding information used to encode said packet data (page 3, lines 5-7); and

decoding the packet using corresponding decoder information in said decoder information (page 1, lines 26-28).

However, Desnoyers fails to teach: said encoder information record being previously acknowledged by said receiving digital system; building a new encoder information record including the encoding information used to encode said packet data as well as the packet data; updating the decoder information in said decoder information record with said packet data; acknowledging processing of the packet to said sending digital system to enable said sending digital system to update said encoder information so that said new encoder information record is used to encode packet data; and when the packet is lost, at the sending digital system rebuilding the new encoder information record without the lost packet data.

Uota teaches a data transmission system that transmits data between a sending and receiving digital systems, wherein a packet data to be sent is constructed of information record being previously acknowledged by said receiving digital system (abstract; col. 2, lines 52-54);

building a new information record including the information used to construct said packet data as well as the packet data (abstract; col. 2, lines 52-54);

updating the information in said receiver information record with said packet data (abstract; col. 3, lines 2-10, and 32-35);

acknowledging processing of the packet to said sending digital system to enable said sending digital system to update said information so that said new information record is used to send packet data (abstract; col. 2, line 45 to col. 3, line 40; figures 4 and 5); and

when the packet is lost, at the sending digital system rebuilding the new encoder information record without the lost packet data (col. 3, lines 8-12, and lines 29-40).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the teaching of Desnoyers by combining it with the teaching of Uota because by maintaining an acknowledged information record from the decoder, the sender is able to encode and retransmit a data packet using the record that has no error, thus reducing the chance of packet lost and optimizing the encoding process.

(Amended) Regarding claim 2, Desnoyers teaches the method of claim 1, wherein said rebuilding step is performed when a packet is received out of sequence by said receiving system and a threshold amount of time elapses without the missing packet being received (page 6, line 12 to page 7, line 31, page 10, lies 12-22).

(Amended) Regarding claim 3, Desnoyers teaches the method of claim 2 wherein packets received out of sequence are stored in a queue and wherein a packet timer is initiated by said

receiving digital system to count said predetermined amount of time when a packet is received out of sequence, said packet timer being stopped when said missing packet is received (page 6, line 12 to page 7, line 31).

(Amended) Regarding claim 4, Desnoyers teaches the method of claim 3, wherein said rebuilding step includes the step of sending a synch control packet from said receiving digital system to said sending digital system, and synch control packet including a tag identifying the last packet processed by said receiving digital system, said sending digital system using said synch control packet to rebuild said new encoded information record (page 6, line 12 to page 11, line 30).

(Amended) Regarding claim 5, Desnoyers teaches the method of claim 4 wherein said rebuilding step further includes the steps of initiating a synchronization timer at said receiving digital system when said synch control packet is sent; stopping said timer when an acknowledgment is received from said sending digital system in response to said synch control packet; and resending the synch control packet and reinitiating the synchronization timer if said synchronization timer expires and an acknowledgment has not been received (page 6, line 12 to page 11, line 30).

(Amended) Regarding claim 6, Desnoyers teaches the method of claim 5 wherein said rebuilding step further includes the steps of incrementing a counter each time a synch control packet is sent; comparing the value of said counter to determine if the value equals a threshold

prior to resending the synch control packet and reinitiating the synchronization timer; and resetting the communication link between said sending and receiving digital systems if the value of said counter equals said threshold value (page 6, line 12 to page 11, line 30).

Regarding claim 7, Desnoyers teaches the method of claim 1 wherein during said acknowledging step, and acknowledgment packet is returned to said sending digital system, said acknowledgment packet including identifying the last packet processed by said receiving digital system (page 6, line 12 to page 11, line 30).

Regarding claim 8, Desnoyers teaches the method of claim 1 wherein during said acknowledging step, an acknowledgment header encapsulating data packets is returned to said sending digital system, said acknowledgment header identifying the last packet processed by said receiving digital system (page 6, line 12 to page 11, line 30).

(Amended) Regarding claim 9, Desnoyers teaches the method of claim 1 further comprising the steps of, prior to decoding said packets by said receiving digital system, examining said packets to detect corrupts packets and discarding corrupted packets (page 6, line 12 to page 11, line 30).

Regarding claim 10, Desnoyers teaches the method of claim 9 wherein during said examining step a cyclic redundancy check is performed on said packets (page 3, lines 17-27).

(Amended) Regarding claim 11, Desnoyers teaches the method of claim 10 further comprising the step of discarding received packets having packet numbers outside of a defined range of expected packet numbers (page 6, line 12 to page 11, line 30).

(New) Regarding claim 12, Desnoyer teaches the method of claim 6 further comprising the steps of, prior to decoding said packets by said receiving digital system, examining said packets to detect corrupted packets and discarding corrupted packets (page 4, lines 12-34).

(New) Regarding claim 13, Desnoyer teaches the method of claim 12 wherein during said examining step a cyclic redundancy check is performed on said packets (page 3, lines 17-27).

(New) Regarding claim 14, Desnoyer teaches the method of claim 13 further comprising the step of discarding received packets having packet numbers outside of a defined range of expected packet numbers (page 4, lines 12-34 to page 5, lines 1-24).

(New) Regarding claim 15, Desnoyer teaches the method of claim 1 wherein during encoding, the packet data is compressed, encrypted and/or scrambled (page 1, lines 26-28).

(New) Regarding claim 16, Desnoyer teaches the method of claim 9 wherein during encoding, the packet data is compressed, encrypted and/or scrambled (page 1, lines 26-28).

(New) Claims 17-20 has similar limitations as claims 1-4, therefore is rejected under the same rationale.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In response to Applicant's argument that neither Desnoyer nor Uoto either alone or in combination teaches or suggests the encoding of packet data using encoding information in an encoder information record that has been verified as received, the creation of a new encoder information record to be used to encode future packet data that includes the encoding information used to encode the transmitted data packet as well as the transmitted packet data and rebuilding the new encoder information record without the transmitted packet data and of the transmitted data packet is not confirmed. The Patent Office respectfully submits that the mentioned teachings can be found in the combination of Desnoyer and Uoto as stated in the rejection of the claims above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alina N Boutah whose telephone number is (703) 305-5104. The examiner can normally be reached on Monday-Thursday (9:00 am-7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on (703) 308-5221. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

ANB

ANB

DAVID WILEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100